

**Overview of Alternatives to New Runways as Analyzed
in the
2000 Regional Airport System Plan (RASP)**

**Prepared for the Regional Airport Planning Committee
September 2006**

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1. Introduction

The material that follows summarizes work that was performed in 1999 and 2000 to update the Regional Airport System Plan (RASP), with a particular focus on the analysis of alternatives to constructing new runways at the existing airports.

The approved work plan of the Regional Airport Planning Committee divides the review of alternatives to new runways into two phases:

- Phase 1 (new technology, demand management, and a review of new institutional options for managing regional aviation demand)
- Phase 2 (use of alternative airports, High Speed Rail, and further development of general aviation reliever airports)

For the review of alternatives to new runways that were analyzed in the RASP, the discussion is organized under the following topics:

- *Concept*
- *What the RASP Said*
- *Basis for the RASP Findings*
- *Events Since the RASP*
- *Things that Could Change RASP Conclusions*

2. RAPC's Role

RAPC has a unique role, in that it is the only governmental body looking at future Bay Area aviation needs for air passengers, air cargo, and general aviation at the regional level

Although RAPC is not a regulatory body, its recommendations may be implemented by the region through actions of federal, state or local jurisdictions and/or the airports

Each of the three regional planning agencies uses the RASP for its own purposes:

- MTC: the RASP satisfies the state requirement for the Aviation Element of the long-range Regional Transportation Plan
- BCDC: BCDC uses the policies and recommendations to inform the *San Francisco Bay Plan*
- ABAG: Uses the RASP in its land use planning activities and demographic projections; ABAG has also conducted studies of the earthquake vulnerability of airport runways

3. 2000 RASP

The previous Regional Airport System Plan update was completed in September 2000 and included the following elements:

Forecasts of Aviation Demand (2010 and 2020)

- Air passengers (by destination, Bay Area county, airport, and airline)
- Air cargo
- Number of flights (passenger and cargo)

Airspace and Runway Capacity Analysis

- Causes of delays
- Runway capacity for different runway configurations at SFO and OAK
- Computer simulations of the operation of the entire Bay Area airspace (using FAA-approved model)
- Input from Consultant with knowledge of FAA's airspace operations

Analysis of Alternatives to New Runways (the focus of the current review)

Regional Overflight Noise

- Conducted four (4) forums around the Bay on higher altitude aircraft noise from flights into and out of the commercial airports

Environmental Analysis

- Projected changes in overflight noise by looking at future use of various aircraft flights tracks
- Developed inventory of emissions from aircraft and autos
- Projected future ground traffic at each airport
- Developed environmental "Scorecard" listing issues BCDC would need to consider prior to approving any Bay fill for new runways

Public Input

- RAPC meetings were well attended
- One regional Forum held in San Francisco

4. Airport Operations

General

The Bay Area's airport "system" is an assembly of individual airports, each fulfilling their own individual roles, and competing for users and funding to implement improvements. (Figure 1, Page

The closest example of a true system approach to the operation of the Bay Area's airports is the FAA's management of the Bay Area's complex airspace. The FAA must coordinate flights into and out of all the airports to ensure safe and efficient flight operations in the Bay Area. (See Figure 2a & 2b)

Air Passenger Service

Each of the Bay Area's three commercial airports--SFO, OAK, SJC-- caters to a different air passenger market:

- Southern California (including the LA Basin, Orange County and San Diego) is the largest air travel market for the Bay Area, followed by New York, Seattle, Las Vegas, and Chicago
- Frequent service to Southern California exists at all three airports, thus the share of passengers handled in this market is also split fairly evenly among the three airports
- SFO handles most of the International passengers
- OAK has the most low fare air service

Each airport draws the bulk of its air passengers from the immediate vicinity of the airport; however,

- Air passengers in the four North Bay counties (about 10% of air passengers) use both SFO and OAK and are fairly evenly split between the two airports
- SJC serves air passengers from Santa Cruz and Monterey
- Air passengers from the Central Valley primarily use SFO because of the availability of longer distance international and domestic flights

The current division of passengers handled at the three airports (CY 2005) is (see Figure 3, page 29):

- SFO: 32.8 million annual passengers (56.6%)-14th busiest airport on the US
 - OAK: 14.4 million annual passengers (24.8%)-32nd busiest airport in the US
 - SJC: 10.8 million annual passengers (18.6%)-36th busiest airport in the US
- Total Bay Area: 58.0 million annual passengers

Air Cargo

- The bulk of the air cargo volume is split between SFO and OAK
- Most International air cargo (over 95%) is shipped out of SFO in the belly of passenger planes

- OAK is a hub for FedEx and handles a large amount of cargo in small packages
- SJC handles about 8% of regional air cargo (although the South Bay generates considerably more than 8% of the air cargo demand)

General Aviation

General aviation refers to all personal and business aircraft that are not operated by commercial air carriers or the military, and these aircraft range from small piston-powered airplanes to large corporate jets.

Each Bay Area county has one or more general aviation airports. (Figure 1)

There are about 5,800 general aviation aircraft based at 23 airports that serve general aviation around the region, including the major air carrier airports.

Runway length at the general aviation airports varies from about 2,200 ft. to just over 6,000 ft. (compared to commercial airport runways which are 10,000 to 11,000 feet long)

The smaller general aviation airports in the Bay Area typically handle 30,000 to 60,000 annual flights, while the larger airports serve over 200,000 annual flights.

Because of their proximity to major business and population centers, the three major commercial airports also receive varying degrees of general aviation use.

- SFO: about 5% of the aircraft takeoffs and landings are by general aviation
- OAK: most general aviation activity occurs on the North Field, which is a separate general aviation facility from the commercial airport, but about 4% of South Field operations are general aviation (due to the airport's noise abatement policy requiring heavy aircraft to take off at the South Field)
- SJC: about 4% of the operations on the two air carrier runways are by General Aviation; much of the general aviation activity is corporate in nature

Total Flights

Together, the 23 air carrier and general aviation airports handle about 3.4 million aircraft landings and takeoffs a year divided as follows:

- 759,100 airline flights at the three commercial airports (22.5%)
- 1,228,700 General Aviation itinerant (longer distance) flights (36.4%)
- 1,383,400 General Aviation local flights* (41.1%)

*flights that stay near the airport (mostly training)

5. RASP Forecasts

Forecasts prepared in 2000 of air passenger, air cargo, and aircraft flights in 2020 showed:

- Air cargo had the highest projected growth rate: +211%
- Air passenger demand would almost double by 2020 (96% increase)
- Aircraft flights would grow at a slower pace, as the size of aircraft increases in the future (+59%)

After 9/11 and the Dot.Com recession, air travel dropped, but is now growing at a modest rate; the current (2005) air passenger use of the three major airports is about 17% lower than previously forecasted. Contrary to the forecasts, average aircraft size has been decreasing at SFO.

The projected growth rates for air cargo now appear to be too high compared to current trends.

The RASP did not develop any forecasts for general aviation, except for general aviation operations on the main commercial airport runways.

6. Future Constraints

SFO:

- Capacity is limited during poor weather (storm conditions and low lying clouds), since aircraft cannot land simultaneously on runways that are only 750 ft. apart
- Because SFO is a hub for United, its runways serve a large number of commuter aircraft which feed traffic to other parts of United's system, but carry smaller numbers of passengers

OAK:

- OAK has a single 10,000 ft. air carrier runway that serves all passenger and cargo flights, and some general aviation
- The North Field is not available for scheduled airline flights (except in emergencies and during repairs to the main runway), because of a court settlement agreement with the City of Alameda that effectively bans noisy aircraft from taking off from the North Field
- OAK's runway experiences morning and evening peaks in activity, which primarily correspond to California commuter flights and air cargo flights
- The largest carrier is Southwest, which uses a single size of aircraft and does not have any plans to purchase larger aircraft (larger aircraft would increase the number of passengers per flight and add capacity in this manner)

SJC:

- SJC has two closely spaced air carrier runways that are 11,000 feet in length. The airport completed construction of its second air carrier runway in 2002, and reconstructed and extended its former main runway in 2004.
- The primary constraint at SJC is not runway capacity, but the limited land available for new airline gates, parking, and air cargo use
- The main runways also serve a growing corporate general aviation presence, but due to the available runway capacity, these aircraft would not adversely affect runway capacity into the foreseeable future
- A late night curfew is in place from 11:30 p.m. to 6:30 a.m. and prohibits most jet aircraft operations

Runway Capacity

The capacity of each airport is better in good weather (visual flying rules), compared to poor weather (instrument flight rules in use). Based on the previous RASP analysis, the capacity of each airport (arrivals and departures per hour) under these conditions is as follows:

	<u>Good Weather</u>	<u>Poor Weather</u>
• SFO (4 runways)	99-107	79-85
• OAK (1 runway)	49-50	47-49
• SJC (2 runways)	<u>78-80</u>	<u>43</u>
Total	226-237	169-177

Overall, poor weather operations occur about 15-20% of the time.

SFO is affected the most by poor weather.

Because demand doesn't change during poor weather, delays can occur ranging from minor tardiness to flight cancellations

7. Alternatives to New Runways

Alternative: New Air Traffic Control Technology

Concept: Air traffic control technology refers to the FAA's computerized system to manage the flow of aircraft arriving and departing the region's airspace, as well as the electronic navigational aids that guide aircraft landing and taking off from airport runways. There is a large array of technologies that are under development or are being researched that could have significant impact of runway capacity in the future. Some technologies address air traffic controller workload, some provide the ability to more efficiently sequence arriving aircraft, some would allow more flights to land and takeoff during poor weather, and some could close the gap between landing aircraft through wake turbulence surveillance technology, to allow runways to process more aircraft in a given amount of time.

Definition of Alternative: The RASP evaluated those technologies that were being studied and might be available in the 20-year timeframe of the RASP. A particular focus was on technologies that could help SFO land more aircraft during poor weather, when their operations are reduced to a single runway. Other technologies that appeared to offer promise for the Bay Area were computer automation tools to more efficiently sequence aircraft for landing (being evaluated at DFW).

What the RASP Said:

- No technologies would be available in the foreseeable future that will allow SFO to use both of its closely spaced parallel runways during poor weather (SJC's parallel runways are about the same distance apart, as well); hence flight delays will continue.
- The only new landing procedure that would offer near-term benefits was called the Standard Offset Instrument Approach (SOIA) at SFO; this technology allowed aircraft under precision radar monitoring to use both runways during more limited weather conditions (cloud ceiling of 2,100 ft and above), and thus "expand" the amount of time SFO's two runways could be used for arrivals. (Figures 5 a-c, page 31)
- Systems that could monitor the strength and duration of a leading plane's wing tip vortices could have a significant impact on runway capacity, by potentially allowing planes to be spaced closer together on landings, but this appeared to be a long-term solution.
- The development of new air traffic control technology is a highly fluid field, and the implementation timeframe for future improvements is always difficult to define.

- With the planning and introduction of any new air traffic control technology there are a number of critical issues that must be considered: safety, redundancy, liability, and pilot acceptance.

Basis for RASP Findings:

- RAPC received several presentations by the FAA, NASA, and SFO staff on the potential benefits of new technology.
- One new technology, a Standard Offset Instrument Approach (SOIA/Precision Runway Monitor (PRM)) was modeled at SFO as part of the computerized airspace simulation for the RASP. (Figure 5c, page 33)
- A consultant with FAA airspace experience was also retained to provide an independent assessment of the potential benefits from different technologies.

Events Since the RASP:

- At SFO, with decreases in aircraft operations, changes in the way airlines schedule flights (particularly to Southern California), and better weather airfield delays are well below 2000 levels
- The SOIA/PRM (Precision Runway Monitor) procedure was implemented at SFO, increasing the amount of time the airport can use both runways during low cloud ceilings (arrival capacity increases from 30 planes per hour to about 38 planes per hour).
- There have been further advancements in many technology areas, and the FAA's Next Generation Air Transportation System (NGATS) has the stated goal of tripling the capacity of the National Aviation System (but is not aimed at fixing the capacity problems of any particular airport).
- At SFO, it may be possible to further expand the use of the SOIA procedure for lower cloud ceilings with advancements in computer software and aircraft monitoring.
- SFO is conducting a new study of potential technological advances and their applicability to SFO's weather-related delay problems.

Things that could change RASP Conclusions:

- Changes in aircraft fleet mix and demand would affect future airfield capacity
- Emergence of an unknown technology that would allow aircraft to land side-by-side on closely spaced runways in very low visibility (SFO and SJC)
- Emergence of an unknown technology that would provide much tighter spacing (reduced wake turbulence separation) between arriving aircraft on a single runway

Alternative: Demand Management

Concept: Demand management can theoretically address one or more of the following capacity issues at an airport:

- Chronic over-scheduling of flights during certain hours of the day
- Chronic over-scheduling of flights on a daily or seasonal basis

Four airports have congressionally-imposed limits on their operations: Reagan National, Chicago O'Hare, La Guardia and JFK. These limits take the form of "slot" controls (controls on the number of flights) or "perimeter" rules (where originating flights are only allowed within a certain distance from the airport). A local airport operator is more restricted in limiting "access" to runways, and any proposed control must comply with six conditions in federal law as well as provide substantial backup information for FAA review. In particular, these conditions focus on whether proposed restrictions are "reasonable, nonarbitrary and nondiscriminatory". In addition, various members of the public have suggested that a new regional airport authority would have the ability to rationalize airline schedules among the three airports, making better use of available runway capacity.

Definition of Alternative: A number of demand management concepts were evaluated in the RASP, primarily focusing on the delay problem at SFO, but also addressing future capacity issues at OAK and SJC:

- a "cap" on the number of flights between SFO and Southern California airports
- a requirement that commuter airlines use larger aircraft (e.g., substitute regional jets for smaller turboprop passenger aircraft)
- a requirement that low fare airlines serving Southern California with frequent flights also use larger aircraft ("up gauge" aircraft size)
- a limit on the general aviation flights at SFO, or a complete shift of general aviation to other airports
- incentives for airlines to increase load factors (the percentage of seats filled)
- construction of an underwater rail link between SFO and OAK to make the two airports effectively operate as a single terminal
- use of OAK's North Field for commercial airline operations

What the RASP Said:

- The Airport Noise and Capacity Act of 1990 was designed to protect airlines purchasing the latest and quietest passenger jets from unreasonable controls on their use. While the Act does limit an airport operator's ability to control airline operations, it also provides a mechanism to propose demand management-type controls—subject to FAA review and approval. The Act does not apply to establishment of landing fees that are strictly aimed at capacity problems.
- The analysis focused on estimating the number of flights that would be reduced if various demand management strategies were implemented (Figure 6, page 34):
 - up gauge size of aircraft flying from SFO to Southern California (2-3% reduction in flights);

- up gauge commuter aircraft size at SFO (7% reduction),
 - eliminate general aviation at SFO (5% reduction)
 - increase airline load factors (2.3% reduction)
- The entire Bay Area airspace operation was simulated using an FAA-approved computer program. Hypothetical demand management scenarios were tested as part of the simulation runs. Delay reductions ranged from 7% to 34% with very aggressive strategies.
- A study of a direct underwater rail connection between SFO and OAK airports (performed by SFO in response to SB 1562) showed such a connection would be as expensive as adding a new runway. It was also unclear as to the actual impact on use of the two airports.
- The use of OAK's North Field runways for commercial airline arrivals would create significant noise problems for surrounding communities. Takeoffs by large aircraft (aircraft over 12,500 lbs.) are currently prohibited by a settlement agreement in a mid-70's lawsuit between the Port of Oakland and City of Alameda.
- The RASP did not perform a detailed investigation of a new regional airport authority, but the ability of a new authority to manage regional aviation activity would have similar constraints under federal law to those of the individual airports. The RASP concluded that shifting flights from SFO to OAK would be counter productive, since OAK's runway is already projected to exceed capacity in the next 10 years.

Basis for RASP Findings:

- The detailed forecasts developed for the RASP enabled a review of the likely impact of potential demand management strategies.
- The computerized Bay Area airspace simulation model provided the means to estimate the cumulative impact of a set of hypothetical demand management strategies at individual airports on reducing aircraft delay.
- Other airports around the country have sought to establish various demand management programs (notably Boston Logan), but no airports had such controls in place (other than the congressionally mandated controls at the four airports above).
- The results of various demand management/delay reduction studies prepared by SFO as part of their Runway Reconfiguration Study were reviewed.

Events Since the RASP:

- Southwest stopped serving SFO, due largely to weather-related delays and costs to operate at the airport
- After Congress removed slot restrictions at La Guardia and Chicago O'Hare, the FAA had to step in and administratively re-establish controls to mitigate chronic over-scheduling by the airlines
- Boston Logan has completed the FAA review process for a new peak period landing fee. A fee would be triggered if airline schedules would lead to peak period congestion.

- Airline load factors have reached an all time high as the airlines have reduced seating capacity while at the same time demand has started to grow again.
- SFO will be updating its analysis of delay trends and causes of delay using more current information on weather patterns, runway operations, airline schedules, etc.

Things that could change RASP Conclusions

- Changes in federal law relaxing restrictions on local actions to manage demand
- Successful applications of demand management at other US or international airports that could be modeled in the Bay Area

Alternative: New Airport in the North Bay

Concept: Some 10% of the region's air travelers originate or have destinations in the North Bay. The RASP evaluated a hypothetical alternative that would serve a portion of the North Bay air travel market by developing a new commercial airport in the North Bay. The most viable future airline services would be those serving the highest volume markets, such as Southern California as well as a few major Western US cities (passengers with other air travel destinations would continue to use SFO and OAK). Over the years, several locations for a new airport in the North Bay have been discussed (e.g., the former Hamilton AFB, Lakeville Road in Marin County, Skaggs Island (along Rt, 37 in the North Bay), but the concept is highly problematic, due to high costs, likely environmental concerns, and airline economics.

Definition of Alternative: The RASP evaluation concentrated on determining the number of air passengers a new airport might serve, assuming flights to Southern California (2010), and additional flights to Seattle, Portland, Phoenix, and Las Vegas in the longer-term (2020).

What the RASP Said:

- New airline service would not be economically viable, except in the highest volume air travel markets
- A hypothetical North Bay Airport serving the destinations above would reduce flights at SFO and OAK from 2% to 3.5%.
- There is currently no identified site, or process for identifying a site, for a major new commercial airport
- A new airport would take many years to plan and construct and would not solve near to mid-term runway congestion problems at the existing airports
- Airlines would need to underwrite a major portion of the cost of a new airport through their landing fees and leases
- Given the airline industry's adversity to incurring new costs, the likelihood of airline-financed airport development and attracting a large number of airlines to a new airport is highly unlikely

Basis for RASP Findings:

- The detailed forecasts prepared for the RASP enabled the air passenger market for a North Bay Airport to be analyzed.
- Prior studies conducted by MTC addressed a new North Bay Airport: North Bay Aviation Study (circa 1980) and Feasibility Study of the Joint Use of Travis AFB (1976)

Events Since the RASP:

- Airline bankruptcies and continued emphasis on lowering costs
- Airline service reductions in some markets
- Rising land and construction costs

- Continued population growth in the North Bay, resulting in greater sensitivity to new noise sources

Things that could change RASP Conclusions:

- Strong interest from local communities in the North Bay for air service to popular travel destinations
- Start up of new airlines that focus on service to smaller communities
- Chronic delays at existing airports that make service at more distant airports more attractive
- Creation of a new authority, similar to what occurred in San Diego, that would be able to develop a new airport

Alternative: Use of Travis AFB

Concept: As a major existing military airport, Travis AFB has extensive aviation facilities. While somewhat remote from the central Bay Area air travel market, it has the advantage of uncongested airspace and a land use planning process that is helping to protect the airport from incompatible development. In the past, a joint use agreement (since expired) provided for a limited number of civilian flights. MTC studied the potential for expanded civilian use in a 1976 study conducted in cooperation with Solano County, but no action was taken following the study.

Definition of Alternative: The RASP considered several different civilian joint use roles: 1) as a commercial airport with flights to Southern California, 2) as an International airport with longer distance flights, and 3) as a cargo airport.

What the RASP Said:

- The RASP Recommendations stated:
“That, to protect future capacity options, there is a continuing regional interest in civil aviation use of Travis AFB”, and
“Local jurisdictions in Solano County are encouraged to apply strict land use compatibility guidelines to proposed developments around Travis AFB to protect the airport from encroachment”
- Of the four North Bay counties, Solano County was projected to have the lowest future air passenger demand.
- Use of Travis AFB for International air service would be problematic, as many International travelers need to make connections to other Domestic flights (largely located at SFO and OAK); also, with SFO’s new International Terminal, another major International facility would not be needed for a number of years.
- Use of Travis AFB for air cargo would not meet the needs of the major “integrated” air cargo airlines, such as FedEx and UPS (integrated carriers both fly and deliver cargo and packages). This is because these airlines need fast and convenient access to their major customer base, which is in Downtown San Francisco, the East Bay, and Silicon Valley.
- The airlines would need to be interested in serving Travis AFB; this interest was not evident in the earlier Travis AFB Feasibility Study (when airlines were in a more expansion-minded and prosperous mode)
- As with a new North Bay Airport (above), the costs of constructing new joint use facilities (e.g., terminals, parking, roads) would be substantial, and the ability of a local airport entity to pay for these costs alone is problematic.

Basis for RASP Findings:

- Forecasts of air passengers who might use Travis AFB
- Input from consultants with knowledge of the air cargo industry
- Input from consultant with knowledge of FAA airspace operations

Events Since the RASP:

- The most recent Base Re-Alignment and Closure Commission of the Department of Defense retained Travis AFB as a military facility (the next evaluation will occur in 3 years).
- Military flights at Travis AFB have increased due to worldwide conflicts; this could lessen any near to mid-term DOD interest in a hosting any civilian use.
- Solano County has continued to maintain compatible land use around the airport.
- Addition of new Super Jumbo (A380 carrying 550+ passengers) service at SFO in the international market

Things that could change RASP Conclusions:

- See bullets above under North Bay Airport
- In addition to strong community interest, a DOD that is receptive to the concept of civilian joint use
- A rapid ground access connection, such as High Speed Rail, that would link Travis AFB to the central Bay Area and make the airport much more accessible to a larger share of Bay Area air travelers
- A larger use of new Super Jumbo airliners than forecasted, requiring additional facilities to those at SFO
- Limitations on the ability of existing airports to handle international air cargo (currently carried in the bellies of international flights to and from SFO)
- A future decision by the DOD to de-activate Travis AFB as a military facility (currently considered unlikely)

Alternative: Use of Moffett Federal Airfield

Concept: As a major federal aviation facility operated by NASA, Moffett has two long (8,100 ft. and 9,200 ft.) runways and is located on the Bay, providing for mitigation of noise from takeoffs. It is centrally located in relation to South Bay air passenger and air cargo demand. Moffett is identified as an Airport Priority Use Area in BCDC's *San Francisco Bay Plan*, with the notation that if and when not needed for military use, a study should be conducted to determine its role relative to regional aviation needs.

Definition of Alternative: The RASP considered several different aviation roles for Moffett: 1) California Corridor service by smaller regional jets, 2) corporate general aviation, and 3) air cargo.

What the RASP Said:

Similar to recommendation for Travis AFB, the RASP stated:

"That, to protect future capacity options, there is a continuing regional interest in civil aviation use of Moffett Federal Airfield"

- The RASP forecasts showed a strong local market for California Corridor air travel (as part of the larger Santa Clara County air market)
- Given landside constraints at SJC, Moffett could also help relieve SJC by serving some corporate general aviation or air cargo activity
- Aircraft departures from Moffett Federal Airfield would need to be coordinated with departures from SJC, due to the close proximity of the two airports (similar to the coordination that currently takes place between SFO and OAK departures)
- If Moffett were to become available in the future, a public operator for the facility would need to be identified.

Basis for RASP Findings:

- Forecasts of future air passenger demand at Moffett Federal Airfield
- Evidence from the San Jose International Airport Master Plan that SJC will face significant landside constraints in the future, limiting its potential to serve long-term air passenger and air cargo demand in Silicon Valley and Santa Clara County
- An earlier study by NASA evaluated potential for air cargo service
- Input from consultant with expertise in FAA airspace operations

Recent Events:

- New housing and commercial office space has been approved at Moffett (NASA Ames) subject to certain conditions on the project by BCDC to ensure the development would not foreclose the potential for future aviation use
- The Water Transit Authority has evaluated Moffett as a potential ferry terminal site

Things that could change RASP Conclusions

- Change in NASA policy, such that NASA would open the facility to civilian aviation as a way of helping defray the cost of operating and maintaining the runways
- Development of other airports to serve long-range aviation demand in Santa Clara County
- More detailed airspace studies showing that expanded aviation use of Moffett would severely compromise flight operations at SJC
- Significant environmental impacts related to noise, wildlife, the Bay, rising sea levels, or ground traffic
- Lack of a governmental entity to take control of Moffett, should it no longer be operated by NASA

Alternative: Use of General Aviation Airports for Limited Airline Service

Concept: Several of the region's general aviation airports have had regularly scheduled airline service in the past, either in the form of feeder flights to SFO (Sonoma County, Travis AFB) or direct flights to Southern California (Sonoma County and Buchanan Field in Concord). Service has ranged from 7-10 flights a day. The concept evaluated in the RASP was to "regionalize" air service by providing more local airline service choices for communities throughout the Bay Area. Service to these communities would be provided by smaller, quieter regional jets that could take off and land from shorter runways (Figure 7, page 35). This type of service would also reduce the number of flights from SFO, OAK, and SJC as passengers would be using other airports.

Definition of Alternative: The RASP's hypothetical system of satellite airports included: Moffett Federal Airfield, NutTree (Vacaville), Buchanan (Concord), Sonoma County, Napa County, Gness Field (Marin County), Livermore, and Santa Clara County (South County Airport). As in the past, the most viable air passenger market would be flights to Southern California. (Figure 8, page 36) The airports listed are geographically dispersed to better serve the local air passenger markets and would have the capacity for commercial service.

What the RASP Said:

- Not all of the general aviation airports have the required runway length to accommodate fully loaded regional jets
- Some airports lack the electronic navigational aids for reliable service in good and bad weather
- Some airports are in a good location from an airspace operations perspective, while others would complicate airspace management
- Given the size of the local air markets served, demand at the three commercial airports would be only minimally affected, reducing flights by less than 1% to 5% percent: SFO (0.6%), OAK (4-5%), and SJC (4%)
- The use of smaller Regional Jets in these markets would actually increase the number of flights into and out of the Southern California's airspace and airports; this is because bigger aircraft would be replaced by smaller regional jets carrying fewer passengers.
- Communities would need to proactively seek this type of service, and airlines would be concerned with the profitability of the service

Basis for RASP Findings:

- Forecasts of air passengers who would use the various satellite airports
- Input from consultant with expertise in FAA airspace operations

Recent Events:

- Sonoma County Airport-plans for new Horizon Air service to Los Angeles and Seattle
- Livermore Airport Master Plan Update- significant community concerns related to jet noise
- Gness Field (Marin County) -discussion of lengthening one of the main runways for safety
- Buchanan Field-proposal to close the airport and redevelop land for mixed commercial and residential use, consistent with the regional Smart Growth policies

Things that could change RASP Conclusions:

- Success of new services, such as Horizon Air at Sonoma County airport
- Emergence of new airlines specializing in service to smaller communities
- Growth in air taxi service from general aviation airports, as an alternative to scheduled airline service
- Changes in public perception about noise, particularly that associated with the smaller Regional Jets
- A new regional authority that could work in cooperation with local communities to help establish and maintain air service
- New air traffic control technology that would make general aviation airports more accessible during poor weather and provide ways to minimize airspace conflicts

Alternative: Shift General Aviation to Reliever Airports

Concept: Air carrier runways continued to be used to some extent (mostly small) by general aviation aircraft serving business and other users. The faster general aviation aircraft, while compatible with commercial airline operations, consume runway capacity that would otherwise be available for larger commercial and cargo jets. By providing attractive facilities and upgraded navigational aids at the region's other general aviation airports, it may be possible to shift more of the general aviation from the air carrier to these other airports.

Definition of Alternative: The airports with the most potential to help relieve the air carrier airports would be those with the most services (flight training, aircraft repair and maintenance, and terminals serving corporate general aviation). These airports generally have the runway capacity to take on more operations, but may need additional parking or hangar space. These airports also have the more sophisticated navigational aids for poor weather operations.

What the RASP Said:

- Shifting general aviation from the air carrier runways to other airports would reduce long-range (2020) runway demand at SFO by about 5%, and slightly more at OAK and SJC.
- Some corporate general aviation users will continue to want access to the main commercial airports because of their central location, existing corporate facilities, and all-weather instrument landing capability.
- It would be difficult for a commercial airport to create disincentives for general aviation use, given federal limitations on the extent to which an airport can restrict any type of legitimate aviation activity.
- Even raising landing fees may not be a substantial enough disincentive, as some general aviation users would choose to pay the higher fees rather than land at a less convenient airport.
- Although OAK has a separate general aviation airport (North Field), heavier general aviation aircraft are required to takeoff on the main air carrier runway as part of a legal agreement to limit noise in Alameda.

Basis for RASP Findings:

- RASP forecasts of future general aviation operations at the three commercial airports
- The RASP did not attempt to evaluate the effect of making specific types of improvements at the individual general aviation airports on shifting demand, as this relationship is difficult to quantify

Events Since the RASP:

- Similar to the commercial airline sector, general aviation growth has also slowed, making general aviation less of a capacity issue at the major airports at least in the short to mid-term

- Continuing improvements at many of the region's general aviation airports, as recommended in each airport's Master Plan; however, these improvements have not generally involved new runway capacity
- Continuing placement of new orders for light weight "micro jets", possibly opening up new "air taxi" markets at general aviation airports
- Increasing popularity of fractional ownerships as a means of obtaining access to business jets—increasing their use at both air carrier and general aviation airports
- Public comments on recent airport master plans, expressing concerns about airport projects that could lead to increased jet operations.

Things that could change RASP Conclusions:

- Actions by the air carrier airports to reduce/downsize facilities and services to general aviation (e.g., reduce parking, fueling, terminal space, etc.), thus encouraging use of alternate airports
- Increasing rates and charges for general aviation users at the major airports; establishing minimum landing fees
- Changes in federal law granting airports new flexibility in the use of landing fees to address capacity problems
- Further advances in reducing noise from jet aircraft that would make general aviation business jets more acceptable to local communities
- A speed up in the installation of new runway navigational aids at general aviation airports that would make these airports more accessible in poor weather

Alternative: High Speed Rail (HSR)

Concept: High Speed Rail could be an alternative to air travel for many passengers with destinations to the Central Valley and Southern California. The potential to divert air passengers to a future HSR system would depend on a number of factors: travel times (both in vehicle and the amount of time required for security processing), difference in price (fares charged by airlines and HSR), and overall system reliability (primarily related to weather). While funding has not been secured for a future California HSR system, planning is proceeding in the form of new alignment studies and updating ridership and revenue projections.

Definition of Alternative: The California High Speed Rail Authority is charged with planning a system that would operate at speeds up to 200 mph and have a travel time of approximately 2.5 hours between the Bay Area and Los Angeles (Figure 9, page 37). At the time of the RASP, both an inland and coastal route were being considered with connections to Sacramento and San Diego. Also, in the original HSR study, the Bay Area would have two terminals, one serving downtown San Francisco and the other serving Oakland.

What the RASP Said:

- A HSR system would be costly (over \$26 billion) and take years to construct (the earliest startup date at the time of the RASP was thought to be 2016).
- A new HSR system would not help address near to mid-range runway capacity problems.
- Diversion of a portion of the air passengers in the California market could reduce runway demand (2020 flights) at SFO by 4-7%, at OAK by 5-9%, and at SJC by 7-13%.
- The higher projected use of HSR was based on low fares (compared to airline fares); it is possible the airlines could be more competitive in their fares than assumed in the high diversion scenario.

Basis for RASP Findings:

- Forecasts of the number of air passengers traveling between the Bay Area and airports/cities along the HSR route, where diversion from air to rail could be expected
- Use of the California High Speed Rail Authority's estimates for diversion of passengers from air to rail in various markets, depending on relative fare levels (this range was 35-56%)

Events Since the RASP:

- The California High Speed Rail Authority has certified a program-level EIR for the alignment
- Studies to refine the alignment options for entry into the Bay Area are proceeding; the two alignments being studied are the I-580 Altamont Pass and the southerly Pacheco Pass alignment (which would enter the Bay Area via Gilroy/San Jose).

- A new study is underway to update the HSR ridership and revenue forecasts (MTC is participating)
- A \$10 billion bond measure has been proposed to fund the initial segment (LA to Bay Area), but the measure has not been placed on the ballot
- The current \$20 billion statewide transportation infrastructure bond on the November 2006 ballot does contain any funding for HSR

Things that could change RASP Conclusions

- Approval of new funding that would enhance the chance of a HSR system being implemented
- Changes in the HSR alignment affecting the cities and markets that would be served
- Major reduction in airline capacity, due to economic or other conditions, that would make HSR a necessary travel alternative
- Energy shortages/rising fuel costs, that make the cost of travel on HSR substantially lower than by air
- Potential use of HSR to substitute for some air cargo flown between the Bay Area and other California destinations
- Implementation of demand management strategies, such as a cap on flights to Southern California, which would require a HSR system as part of the equation for serving future demand.